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Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	09/975,128
Filing Date	October 10, 2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob A.
Attorney Docket Number	P15426

### ENCLOSURES (Check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Change of Correspondence Address	<input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> - Copies of nineteen (19) cited references
<input checked="" type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> CD, Number of CD(s) _____	
<input type="checkbox"/> Reply to Missing Parts/ Incomplete Application	<input type="checkbox"/> Landscape Table on CD	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53		
Remarks		

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Intel Corporation		
Signature	/s/Michael A. Proksch/Reg. No. 43,021/		
Printed name	Michael A. Proksch		
Date	February 14, 2006	Reg. No.	43,021

### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Derek S. Watson	Date	02-14-2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

# FEE TRANSMITTAL

## For FY 2005

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)

180.00

**Complete if Known**

Application Number

09/975,128

Filing Date

10/10/2001

First Named Inventor

Sandesh Goel

Examiner Name

Phunkuhl, Bob A.

Art Unit

2661

Attorney Docket No.

P15426

**METHOD OF PAYMENT** (check all that apply)

Check  Credit Card  Money Order  None  Other (please identify): \_\_\_\_\_

Deposit Account Deposit Account Number: 50-0221 Deposit Account Name: Intel Corporation

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

<input checked="" type="checkbox"/> Charge fee(s) indicated below	<input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee
<input checked="" type="checkbox"/> Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17	<input type="checkbox"/> Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**Fee Description

Each claim over 20 (including Reissues)

Small EntityFee (\$)

50 25

Each independent claim over 3 (including Reissues)

200 100

Multiple dependent claims

360 180

Total ClaimsExtra ClaimsFee (\$)Fee Paid (\$)

$$- 20 \text{ or HP} = \underline{3} \times \underline{50.00} = \underline{150.00}$$

HP = highest number of total claims paid for, if greater than 20.

Multiple Dependent ClaimsFee (\$)Fee Paid (\$)Indep. ClaimsExtra ClaimsFee (\$)Fee Paid (\$)

$$- 3 \text{ or HP} = \underline{1} \times \underline{200.00} = \underline{200.00}$$

HP = highest number of independent claims paid for, if greater than 3.

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =		/ 50 = (round up to a whole number) x		=

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Fees Paid (\$)Other (e.g., late filing surcharge): Information Disclosure Statement Fee

180.00

**SUBMITTED BY**

Signature	/s/Michael A. Proksch/Reg. No. 43,021/	Registration No. (Attorney/Agent) 43,021	Telephone 503-264-3059
Name (Print/Type)	Michael A. Proksch		Date February 14, 2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re: the Application of: )  
DEMOCRATIC REPUBLIC OF THE CONGO, )  
Sandesh Goel, et al. ) Art Group: 2661  
Application No.: 09/975,128 ) Examiner: Phunkuhl, Bob A.  
Filed: October 10, 2001 )  
For: **A SYSTEM AND METHOD FOR** )  
**PROVIDING AUTOMATIC** )  
**RE-TRANSMISSION OF WIRELESSLY** )  
**TRANSMITTED INFORMATION** )

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty to disclosure, included herewith is form PTO/SB/08 or PTO-1449 indicating references cited and copies of the cited art except for copies not required to be submitted (e.g., copies of US patents and US published patent applications need not be enclosed). This IDS and IDS Citation Form are being submitted before the mailing of a Final Office Action. It is respectfully requested that the cited references be considered and that the enclosed copy of PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

Pursuant to 37 C.F.R. § 1.97 the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

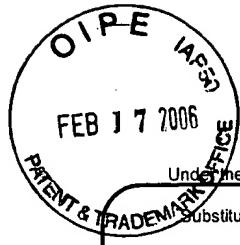
Please charge any additional fee due to Deposit Account 50-0221. A duplicate copy of the Fee Transmittal is enclosed for this purpose.

02/17/2006 HTECKLU1 00000089 500221 09975128  
01 FC:1A06 180.00 DA

Respectfully submitted,  
Intel Corporation

Date: February 14, 2006

/s/Michael A. Proksch/Reg. No. 43,021/  
Michael A. Proksch, Reg. No. 43,021



PTO/SB/08A (08-03)

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Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 8

### Complete if Known

Application Number	09/975,128
Filing Date	10/10/2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob
Attorney Docket Number	P15426

### U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> ( <i>if known</i> )			
		US- 4,554,552	11-1985	Alford et al.	
		US- 6,714,514	03-3004	Espax et al.	
		US- 6,411,824	06-2002	Edison	
		US- 6,081,566	06-2000	Molnar et al.	
		US- 6,400,699	06-2002	Airy et al.	
		US- 6,351,499	02-2002	Paulraj et al.	
		US- 6,317,420	11-2001	Schiff	
		US- 6,067,290	05-2000	Paulraj et al.	
		US- 5,642,353	06-1997	Roy et al.	
		US- 5,515,378	05-1996	Roy et al.	
		US- 6,452,981	09-2002	Raleigh et al.	
		US- 5,901,354	05-1999	Menich et al.	
		US- 6,535,497	03-2003	Raith	
		US- 6,249,669	06-2001	Ogino et al.	
		US- 5,608,765	03-1997	Tanoue	
		US- 5,894,598	04-1999	Shoki	
		US- 6,317,435	11-2001	Tiedemann	
		US- 6,069,883	05-2000	Ejzak et al.	
		US- 6,049,543	04-2000	Sauer et al.	

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> ( <i>if known</i> )				
		WO 98/09385	03-1998	Raleigh		
		WO 98/09381	03-1998	Raleigh		
		WO 98/34424	08-1996	Driessen		
		WO 00/79722	12-2000	Alamouti		
		WO 96/22662	07-1996	Barratt et al.		
		EP 1 185 001	03-2002	Wu et al.		

Examiner Signature	Date Considered
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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449/PTO		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Application Number	09/975,128
		Filing Date	10/10/2001
		First Named Inventor	Sandesh Goel
		Art Unit	2661
		Examiner Name	Phunkulh, Bob
Sheet	2	of	8
Attorney Docket Number P15426			

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> ( <i>if known</i> )			
		US- 5,936,949	08-1999	Pasternak et al.	
		US- 5,923,650	07-1999	Chen et al.	
		US- 5,752,193	05-1998	Scholefield et al.	
		US- 6,144,711	11-2000	Raleigh et al.	
		US- 5,815,488	09-1998	Williams et al.	
		US- 5,933,421	08-1999	Alamouti et al.	
		US- 6,064,662	05-2000	Gitlin et al.	
		US- 6,192,026	02-2001	Pollack et al.	
		US- 6,097,771	08-2000	Foschini	
		US- 6,058,105	05-2000	Hochwald et al.	
		US- 6,278,697	08-2001	Brody et al.	
		US- 6,243,367	06-2001	Hussain	
		US- 6,163,547	12-2000	De Vriendt et al.	
		US- 6,097,704	08-2000	Jackson et al.	
		US- 5,136,528	08-1992	Fordham et al.	
		US- 6,441,721	08-2002	Tajima et al.	
		US- 5,535,242	07-1996	Bridida et al.	
		US- 6,266,527	07-2001	Mintz	
		US- 5,940,771	06-2002	Gollnick et al.	

**FOREIGN PATENT DOCUMENTS**

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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> ( <i>if known</i> )				

Examiner Signature	Date Considered
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 3 of 8

**Complete if Known**

Application Number	09/975,128
Filing Date	10/10/2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob

Attorney Docket Number P15426

**U. S. PATENT DOCUMENTS**

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		Number-Kind Code <sup>2</sup> ( <i>if known</i> )			
		US- 6,563,790	05-2003	Yu et al.	
		US- 5,721,733	02-1998	Wang et al.	
		US- 6,185,258	02-2001	Alamouti	
		US- 6,650,878	11-2003	Abe et al.	
		US- 6,802,035	10-2004	Catreux et al.	
		US- 4,347,627	08-1982	Alter	
		US- 6,583,400	06-2003	Miyoshi	
		US- 5,781,583	07-1998	Bruckert et al.	
		US- 5,832,044	11-1998	Sousa et al.	
		US- 6,370,129	04-2002	Huang	
		US- 6,317,466	11-2001	Foschini et al.	
		US- 5,592,490	01-1997	Barratt et al.	
		US- 5,345,599	09-1994	Paulraj et al.	
		US- 5,504,936	04-1996	Lee	
		US- 5,729,825	03-1998	Kostreski et al.	
		US- 5,732,075	03-1998	Tangemann et al.	
		US- 5,841,971	11-1998	Longginou et al.	
		US- 5,642,353	06-1997	Roy III et al.	
		US- 5,828,658	10-1998	Ottersten et al.	

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		Country Code <sup>3</sup> "Number" "Kind Code <sup>5</sup> ( <i>if known</i> )				

Examiner Signature	Date Considered
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 4 of 8

**Complete if Known**

Application Number	09/975,128
Filing Date	10/10/2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob

Attorney Docket Number P15246

**U. S. PATENT DOCUMENTS**

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		Number-Kind Code <sup>2</sup> (if known)			
		US- 5,592,471	01-1997	Briskman	
		US- 6,490,256	12-2002	Jones et al.	
		US- 6,058,114	05-2000	Sethuram et al.	
		US- 6,778,501	08-2004	Malmgren et al.	
		US- 6,763,491	07-2004	McDonnell	
		US- 6,473,399	10-2002	Johansson et al.	
		US- 5,559,810	09-1996	Gilbert et al.	
		US- 6,021,124	02-2000	Haartsen et al.	
		US- 6,842,487	01-2005	Larsson	
		US- 6,185,440	02-2001	Barratt et al.	
		US- 6,850,481	02-2005	Wu et al.	
		US- 6,473,467	10-2002	Wallace	
		US- 6,507,605	01-2003	Fukumoto et al.	
		US- 6,757,241	06-2004	Jones et al.	
		US- 6,888,809	05-2005	Foschini et al.	
		US- 5,886,988	03-1999	Yun et al.	
		US- 5,819,168	10-1998	Golden et al.	
		US- 5,361,276	11-1994	Subramanian	
		US- 5,627,861	05-1997	Kataoka et al.	

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 5 of 8

**Complete if Known**

Application Number	09/975,128
Filing Date	10/10/2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob

Attorney Docket Number P15426

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 5,715,240	02-1998	Borras et al.	
		US- 5,867,478	02-1999	Baum	
		US- 5,889,759	03-1999	McGibney	
		US- 6,198,775	03-2001	Khayrallah et al.	
		US- 5,832,044	11-1998	Sousa et al.	
		US- 6,108,565	08-2000	Scherzer	
		US- 6,104,661	11-2000	Goldburg	
		US- 5,999,800	12-1999	Choi et al.	
		US- 6,175,550	01-2001	Van Nee	
US-					

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

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## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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Sheet 6 of 8

**Complete if Known**

Application Number	09/975,128
Filing Date	10/10/2001
First Named Inventor	Sandesh Goel
Art Unit	2661
Examiner Name	Phunkulh, Bob
Attorney Docket Number	P15426

**U. S. PATENT DOCUMENTS**

## **FOREIGN PATENT DOCUMENTS**

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>				Application Number	09/975,128
				Filing Date	10/10/2001
				First Named Inventor	Sandesh Goel
				Art Unit	2661
				Examiner Name	Phunkulh, Bob
Sheet	7	of	8	Attorney Docket Number	P15426

<b>NON PATENT LITERATURE DOCUMENTS</b>					
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
		Paulraj, A. et al., "Space-Time Processing for Wireless Communications", IEEE Signal Processing Magazine, November 1997, pp 49-83.			
		Paulraj, A., "Taxonomy of Space-Time Processing for Wireless Networks", IEEE Proc. - Radar Sonar Navig., Vol 145, No. 1 February 1998.			
		Andrews, M. et al., "Tripping the Capacity of Wireless Communications using Electromagnetic Polarization", Nature Magazine, 1/18/01, pp 316-318, Vol. 409, Macmillian Magazine.			
		Bertoni, Henry L., "Talk is cheap in the City", Nature Magazine, January 18, 2001, pp 291-292, Vol. 409, Macmillian Magazines.			
		Sumeet Sanhu and A. Paulraj, October 6, 2000, Wireless Conference Presented Paper.			
		Raleigh et al., "Spatio-Temporal Coding for Wireless Communication", March 1998, IEEE Transactions on Communications.			
		A. Maleki et al., "Space-Time Coding Transmission Optimization for Wireless Channels" July 1998, IEEE.			
		A. Scaglione et al., "Filterbank Transceivers Optimization Information Rate in Block Transmission over Depressive Channels", April 1999, IEEE			
		A. Scaglione et al., Redundant Filterbank Precoders and Equalizers Part 1: Unification and Optimal Designs, July 1999 Transactions on Signal Processing			
		R. Negi et al., "Adaptive Antennas for Space-Time Coding over Block-Time Invariant Multi-Path Fading Channels, 1999, IEEE			

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**Complete if Known**

<b>Application Number</b>	09/975,128
<b>Filing Date</b>	10/10/2001
<b>First Named Inventor</b>	Sandesh Goel
<b>Art Unit</b>	2661
<b>Examiner Name</b>	Phunkulh, Bob

Sheet 8 of 8 Attorney Docket Number P15426

**NON PATENT LITERATURE DOCUMENTS**

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		D. Shiu et al., Fading Correlation and Its Effects on the Capacity of the Multielement Antenna Systems, IEEE Transactions on Communications, Vol. 48, No. 3, 03/00.	
		H. Bolcskei et al., Performance of Space-Time Codes in the Presence of Spatial Fading Correlation, IEEE, 2000.	
		H. Sampath et al. Generalized Linear Precoder and Decoder Desgin for MIMO Channels using the Weighted MMSE Criterion, IEEE Transactions on Communications, Vol. XX, No. Y, 2001	

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